

SHOE SOLE HAVING HEEL CUSHIONING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a shoe sole, and more particularly to a shoe sole having a resilient cushioning device for the heel portion thereof.

2. Description of the Prior Art

Typical shoe soles may comprise one or more bladders or air chambers formed in the shoe soles, to increase the resilience of the shoe soles, and to resiliently support the heel portions of the users.

However, the bladders or the air chambers formed in the shoe soles may not be used to effectively cushion the heel portions of the users.

The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional shoe soles.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a shoe sole including a resilient cushioning device for attaching to the heel portion thereof to effectively cushion the heel portions of the users, and thus to comfortably support the heel portions of the users.

In accordance with one aspect of the invention, there is provided a shoe sole comprising a heel portion and a front portion, and a resilient cushioning device engaged in the heel portion of the shoe sole for cushioning heel portions of users, the resilient cushioning device including a first and a second frame members cross to each other to form an X-shape structure as seen from side portion of the resilient cushioning device, the first frame member

and the second frame member each including an inclined structure having a front portion and a rear portion, the rear portion of the first frame member being located above the rear portion of the second frame member, and the front portion of the first frame member
5 being located below the front portion of the second frame member, and the rear portion of the first frame member and the front portion of the second frame member being suspended in the shoe sole, and including a resilience to cushion and support the heel portions of the users.

10 The front portion of the second frame member includes an opening formed therein, the front portion of the first frame member is extended through the opening of the second frame member. For example, the front portion of the second frame member includes two legs and a bar to form and define the opening thereof.

15 The second frame member includes at least one arm extended therefrom and engaged with the rear portion of the first frame member, to support the rear portion of the first frame member. The arm of the second frame member includes at least one projection extended therefrom, the rear portion of the first frame member
20 includes at least one cavity formed therein to receive the projection of the arm of the second frame member.

 A resilient member may further be provided and engaged between the rear portions of the first frame member and the second frame member, to cushion the rear portion of the first frame
25 member.

 Another resilient member may further be provided and engaged between the front portions of the first frame member and the second

frame member, to cushion the front portion of the second frame member. The front portion of the first frame member includes a seat provided thereon to receive and support the resilient member.

Further objectives and advantages of the present invention will become apparent from a careful reading of the detailed description provided hereinbelow, with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side schematic view of a shoe sole in accordance with the present invention;

FIG. 2 is a partial side schematic view of the shoe sole;

FIG. 3 is a top plan view of a resilient cushioning device for the shoe sole;

FIG. 4 is a perspective view of the resilient cushioning device for the shoe sole; and

FIG. 5 is an exploded view of the resilient cushioning device for the shoe sole.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, and initially to FIG. 1, a shoe sole 10 in accordance with the present invention comprises a rear or heel portion 11 for supporting heel portions of users, a front portion 12 for supporting front foot portions of the users, and a resilient cushioning device 20 attached or engaged in the heel portion 11 of the shoe sole 10 to effectively cushion the heel portions of the users.

The resilient cushioning device 20 may be engaged into the heel portion 11 of the shoe sole 10 while molding the shoe sole 10, and includes two frame members 30, 40 arranged cross to each other,

in order to form a substantially X-shape structure (FIGS. 1-2) as seen from the side portion of the resilient cushioning device 20. The frame members 30, 40 may be engaged into the heel portion 11 of the shoe sole 10 while molding the shoe sole 10.

5 One of the frame members 40 includes an inclined structure having a rear portion 41 located below a rear portion 31 of the other frame member 30, and a front portion 42 located above a front portion 32 of the other frame member 30. The other frame member 30 also includes an inclined structure having the rear portion 31
10 located above the rear portion 41 of the frame member 40, and the front portion 32 located below the front portion 42 of the frame member 40.

 The rear portion 41 of the frame member 40 includes a flat bottom surface 49 for being stably retained or molded in the heel
15 portion 11 of the shoe sole 10. The front portion 42 of the frame member 40 is preferably slightly shorter than the front portion 32 of the frame member 30, and includes an opening 43 formed therein, and defined between two legs 44 and a bar 45.

 The front portion 32 of the frame member 30 is extended
20 forwardly and downwardly through the opening 43 of the frame member 40. In addition, the frame member 40 includes one or more arms or a peripheral arm 47 extended therefrom and engaged below the rear portion 31 of the frame member 30, to further support the rear portion 31 of the frame member 30.

25 The arm 47 of the frame member 40 includes one or more projections 48 extended therefrom, for engaging into one or more corresponding cavities 33 (FIG. 5) formed in the rear portion 31 of

the frame member 30, in order to anchor or secure the rear portion 31 of the frame member 30 to the arm 47 of the frame member 40.

In operation, as shown in FIGS 1 and 2, due to the engagement or the molding of the frame members 30, 40 within the heel portion 11 of the shoe sole 10, and due to the inclined structure of the frame members 30, 40, the rear portion 31 of the frame member 30 and the front portion 42 of the frame member 40 are suspended in the shoe sole 10 and may thus include a suspending structure, and may thus include a suitable resilience to cushion and to comfortably support the heel portions of the users.

The rear portion 31 of the frame member 30 includes an O-shaped structure, as seen from the upper portion thereof (FIGS. 3-5). The frame member 30 includes a socket or a seat 34 formed or provided on the front portion 32 thereof.

The resilient cushioning device 20 may further include a bladder or a resilient member 50 engaged between the rear portions 31, 41 of the two frame members 30, 40 (FIGS. 1-5); and/or another bladder or a resilient member 60 engaged between the front portions 32, 42 of the two frame members 30, 40 (FIGS. 1, 5), and/or seated on the seat 34 of the frame member 30, to further provide a cushioning force between the two frame members 30, 40, and thus to further cushion and comfortably support the heel portions of the users.

Accordingly, the shoe sole in accordance with the present invention includes a resilient cushioning device for attaching to the heel portion thereof to effectively cushion the heel portions of the users, and thus to comfortably support the heel portions of the users.

Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination
5 and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.